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CENTRAL INTELLIGENCE AGENCY			
COUNTRY	Hungary	DATE DISTRIBUTED	2 JULY 58
SUBJECT	Proximity Fuse Development/Depots	NO. OF PAGES	3
ARMY review completed.			
THIS IS UNEVALUATED INFORMATION			
<p>1. <u>GENERAL</u></p> <p>a. [redacted] the Telecommunications Research Institute (TRI) worked to develop the chemical composition of a solution which was to be used to activate the power source of a radio transmitter to be used in a proximity fuse for an antiaircraft warhead.</p> <p>b. [redacted]</p> <p>2. <u>THE PROXIMITY FUSE</u></p> <p>a. The work being done on the development of the proximity fuse was highly compartmented, as was all research work conducted at the Institute. All employees were required to sign a statement to the effect that they would not talk about this project to anyone not directly connected with the project under pain of trial by military tribunal.</p> <p style="text-align: right;">the sketch provided by Dr. Peter Banca</p> <p>was correct with the exception that the "metal cap (brass)" shown on the sketch did not protrude, but was machined down to form the ogive of the fuse.</p> <p>b. [redacted] When he was asked whether or not he could accomplish schematic or block diagrams of the electrical circuits used in the fuse, he replied that he would not even know where to begin.</p> <p>c. During tests conducted at the laboratory of the Telecommunications Research Institute, [redacted] two major flaws inherent in the centrifugal battery:</p> <p>1) The first of these was the fact that the formula [redacted] was not completely stable. Note: This formula is [redacted] confirmed</p>			
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2) The second flaw was an intermittent one; i.e., at times the flaw was detectable and, at other times, it was absent. The electronics engineers, at times, complained that the noise level of the battery interfered with the functioning of the transmitting apparatus. At other times, however, the noise level of the battery was well below the acceptable limits.

3. PRODUCTION. [redacted] the production and of the development of the proximity fuse in question, [redacted]

- a. The resistors used in experimental work on the proximity fuse were manufactured somewhere in Budapest. [redacted]
- b. The electron tubes used in experimental work on the proximity fuse were manufactured at I.A.O. in Budapest.
- c. The proximity fuse would have been very expensive to manufacture.
- d. The fuse was not [redacted] developed to a degree of perfection which would render it capable of being mass-produced. A decision had, nevertheless, been reached to produce several thousand trial fuses. These fuses were to have been produced by the Szekesfehervar [47°12'N-18°25'E] Hunting Ammunition Plant (Vadásztöltény Gyár). In this connection, [redacted] the director of the Szekesfehervar Hunting Ammunition Plant was quite unhappy over this plan in that he, the director, was aware of the imperfections inherent in the proximity fuse and, for this reason, feared to expend the funds necessary to produce an imperfect fuse only to have it rejected.
- e. [redacted] the Szekesfehervar Hunting Ammunition Plant was the only plant in Hungary at that time which was capable of producing the proximity fuse. In fact, this plant could have produced from 10 to 20 thousand such fuses in a year with its present (1956) capacity. To reach a production level of perhaps 100,000 fuses a year, an entire new factory would have had to be assembled, which process would have required from 3 to 4 years.

4. ORGANIZATION OF THE TELECOMMUNICATIONS RESEARCH INSTITUTE

- a. Although research projects dealing with the development of military weapons were conducted by the Telecommunications Research Institute, the Institute was administered and budgeted by the Ministry of Heavy Industry. This was true, due to a desire on the part of the communist regime to conceal the amount of the budget allotted to military research.
- b. The Institute had a civilian director, a man by the name of Erno Acs; and, at the same time, a military director, one [redacted] Ferenc Biro, who was called the vice-director. In addition, there were uniformed military engineers who worked at the Institute.
- c. There were only loose ties between the Telecommunications Research Institute and the Hungarian Academy of Sciences, although several of the scientists who worked at the Telecommunications Research Institute were also members of the Academy of Sciences.

5. MISCELLANEOUS

a. [redacted]

b. [redacted]

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[redacted]

- c. [redacted] no other proving grounds for proximity fuses in Hungary, and there was no research being conducted on missiles in Hungary.
- d. [redacted] no knowledge whatsoever regarding proximity fuse or guided missile development or production activities in the USSR or any of the satellites. In this connection, however, [redacted] the research work being conducted on proximity fuses had been assigned to the Telecommunications Research in this field. [redacted] the Soviets had already developed such a proximity fuse and had had it in production for quite some time.
- e. [redacted] a man by the name of (fnu) Istvanffy had taken over the position of Chief Department Engineer for the entire proximity fuse project at THI. [redacted] Note: This position was previously held by Dr. Peter Danes.]
- f. [redacted] one of the scientists who had worked on the electronics end of the proximity fuse development, one Lasalo Ivanyi, is now living in Sweden.
- g. [redacted] the fuse developed in Hungary was primitive as compared with those fuses developed in the USSR and in the US.

- end -

C-O-N-F-I-D-E-N-T-I-A-L

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From PIR--Knowledgeability:

[redacted] DDED Tele Comm Research Institute [redacted] 25X1  
[redacted] was to develop the chemical composition of the centrifugal power  
plant for the proximity fuses for AA warheads. [redacted]  
[redacted] the Szekesfehervar Vadasztolgyeny-- 25X1  
(Szekesfehervar Hunting Ammo Factory) was to have received the order to produce  
the shells. [redacted] the shells are approx 80-90 mm caliber. [redacted]

Institute comes under the Ministry of Heavy Industry. Cinhan administration. 25X1  
Some military eng. are working there and also Russian advisors. This info is as  
of Jan 57.

(Handwritten sheet attached-- [redacted])

25X1

Power pack became activated within 1/10 of second from time glass ampule broke.  
Composition of fluid: 113-115 g  $\text{SnCl}_4$ , 133-135g  $\text{CrO}_3$ ; 108-110g  $\text{HCl}$ ; 154g  $\text{NH}_4\text{Cl}$   
per one liter

Institute is guarded by blue AVH. Street security was maintained at all times.  
Scientists and engineers received their assignments in the morning and a little  
box for which they had to surrender their pass.

[redacted] a Russian advisor was very much pleased with the results 25X1  
of the above-mentioned formula, saying that it is almost like the Russian  
formula.

1 inclosure - Sketch

25X1

C O P Y

C O N F I D E N T I A L

ADDENDUM

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The following is a description of the function of the centrifugal power plant which generates the electric power for the transmitter used in the AAA projectile:

Completed power plant unit (see sketch #2) consisting of various components (see sketch #1) is placed inside the projectile of an AAA shell. Exact location unknown to source. The glass ampule inside the power plant unit (sketch #1) is filled with a solution (developed by source) which has the following formula: 143-145g  $\text{SnCl}_4$ , 133-135g  $\text{CrO}_3$ , 108-110g  $\text{HCl}$ , and 1.54g  $\text{NH}_4\text{Cl}$  per one liter.

Immediately after the shell is fired, the glass ampule containing the above-mentioned solution is broken by the pin in the base of the power plant unit (see sketch #1). The solution seeps out through the holes located in the aluminium casing (see sketch #1) and within 1/10 of a second, the power plant is activated. When the power plant is activated, it immediately supplies the transmitter (location unknown to source) with power and the transmitter sends waves towards, and at the same time it receives waves from, targets by means of an antenna located on the tip of the projectile which enables the missile to detonate at or near the target. There is no guiding mechanism within the projectile to alter its course in flight. Should the projectile not be activated by the target, the projectile will continue on its trajectory and will detonate at a prearranged time.

"END"

(Attached were two sketches. The originals (thermofax copies) are being sent herewith, together with copies made from a sketch traced from the original thermofax.)

C O N F I D E N T I A L

C-O-N-F-I-D-E-N-T-I-A-L

COPY

(Traced from Thermopap)

INSULATING  
PLATE BAKELITE MATERIAL  
39mm in Diameter,  
6 mm in Width  
1.8-1.5mm Thick

Plate may be;  
Carbon-Carbon  
Zinc-Zinc  
Carbon-Zinc  
39mm in Diameter

Carbon plate 70-80 Mikron  
Zinc plate 35-40 Mikron  
1 Mikron =  $\frac{1}{1000}$  mm

Padding plate  
Felt Material  
27 mm in Diameter  
2-10 mm Thick

Lip of Plate  
Bent down and  
Soldered

CAP

8 Holes in a spiral form  
gas escape

Glass Ampule

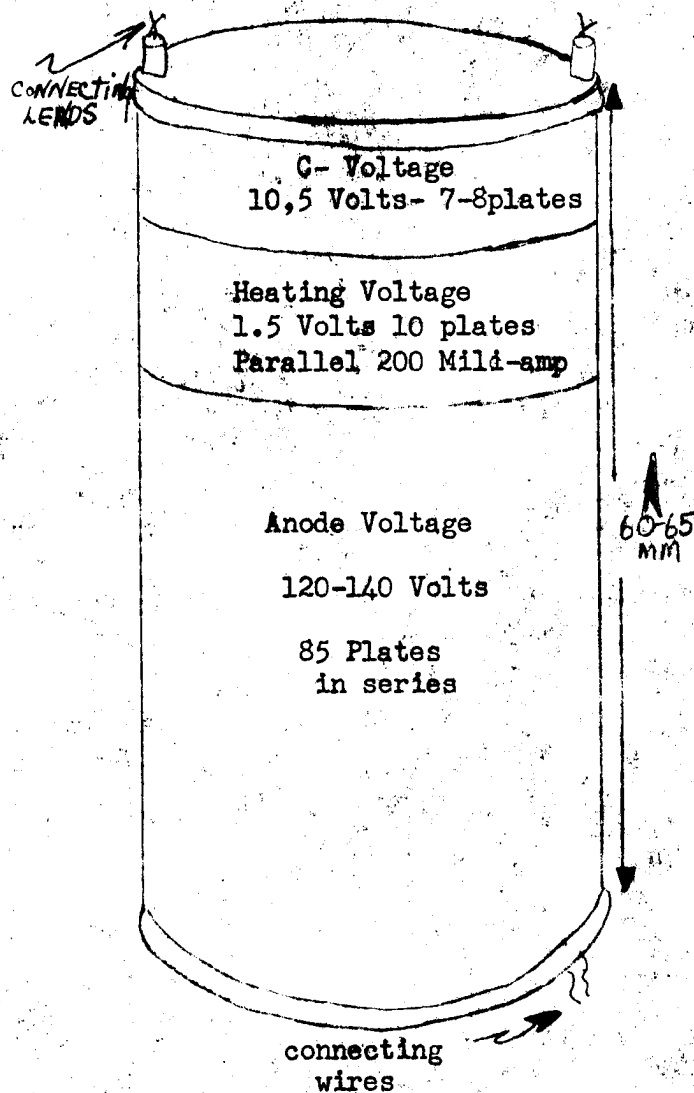
Aluminum casing

Base. 1.5-2mm thick  
Pm 3mm high

Sketch #1

C-O-N-F-I-D-E-N-T-I-A-L

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COPY  
(traced from thermofax)

Entire casing as shown is covered with  
sealing compound which hardens - resembles  
flashlight battery.

SKETCH # 2

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